

## PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 20395WO	<b>FOR FURTHER ACTION</b>		See Form PCT/IPEA/416
International application No. PCT/NL2004/000014	International filing date (day/month/year) 09.01.2004	Priority date (day/month/year) 30.01.2003	
International Patent Classification (IPC) or national classification and IPC C01C1/12			
Applicant DSM IP ASSETS B.V.			

<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> <i>(sent to the applicant and to the International Bureau)</i> a total of sheets, as follows:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</li> <li><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</li> </ul> <p>b. <input type="checkbox"/> <i>(sent to the International Bureau only)</i> a total of (indicate type and number of electronic carrier(s)), containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>
<p>4. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Box No. I Basis of the opinion</li> <li><input type="checkbox"/> Box No. II Priority</li> <li><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li><input type="checkbox"/> Box No. IV Lack of unity of invention</li> <li><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li><input type="checkbox"/> Box No. VI Certain documents cited</li> <li><input type="checkbox"/> Box No. VII Certain defects in the international application</li> <li><input type="checkbox"/> Box No. VIII Certain observations on the international application</li> </ul>

Date of submission of the demand 24.08.2004	Date of completion of this report 27.06.2005
Name and mailing address of the international preliminary examining authority:   European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer  Zalm, W Telephone No. +31 70 340-2804



**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/NL2004/000014

**Box No. I Basis of the report**

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
  - This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
    - international search (under Rules 12.3 and 23.1(b))
    - publication of the international application (under Rule 12.4)
    - international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

**Description, Pages**

1-10 as originally filed

**Claims, Numbers**

1-7 as originally filed

**Drawings, Figures**

1, 2 as originally filed

a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3.  The amendments have resulted in the cancellation of:
  - the description, pages
  - the claims, Nos.
  - the drawings, sheets/figs
  - the sequence listing (*specify*):
  - any table(s) related to sequence listing (*specify*):
4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
  - the description, pages
  - the claims, Nos.
  - the drawings, sheets/figs
  - the sequence listing (*specify*):
  - any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/NL2004/000014

**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims	3-7
	No: Claims	1,2
Inventive step (IS)	Yes: Claims	3-7
	No: Claims	1,2
Industrial applicability (IA)	Yes: Claims	1-7
	No: Claims	

**2. Citations and explanations (Rule 70.7):**

**see separate sheet**

**Re Item V.**

(1) The following documents are referred to in this communication:

D1 : EP 0 005 292 A (STAMICARBON) 14 November 1979

(2) The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1 and 2 is not new in the sense of Article 33(2) PCT.

(2.a) Present claim 1 defines an ammonia separation process (by rectification) whereby a condensation is performed on either a stream of gaseous ammonia or on a stream consisting of ammonia, carbon dioxide and water or on both streams. Essential to this condensation is that at least a part of the carbon dioxide present in this/these streams is condensed.

Document D1 discloses (see figure 2) the separation by distillation of ammonia from an ammonia, carbon dioxide, water mixture. The gas stream (4) coming from the top of the column is fed to condenser (5) and as liquid ammonia (partially) recycled via (20). This first embodiment of the process of claim 1 of the present application is thus disclosed by D1.

Although in claim 1 of the application under consideration the definition of the condensation step is further defined by the (partial) condensation of carbon dioxide it must be understood from the teaching of D1 that such condensation takes place in condenser (5) as well (but is not mentioned explicitly since the top stream includes only a minor fraction of carbon dioxide).

Limitation of the scope of claim 1 to the second embodiment (condensation of carbon dioxide from a mixed stream only (e.g. coming from a carbon dioxide separation step) would overcome the objection. D1 teaches the feeding of a gaseous mixed ammonia/carbon dioxide stream (33) to the column (3) without cooling.

(2.b) With regard to the argument that the gas stream (4) fed to the condenser (5) (as depicted in figure 2 of D1) would consist of ammonia, water and inert gases only or is deprived of carbon dioxide whereas according to the present application carbon dioxide is present as well the following is noticed.

In D1 (page 6, line 26) the stream leaving the ammonia separator is qualified as 'substantially free of carbon dioxide' indicating that, although consisting of mainly ammonia, carbon dioxide

**INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)**

International application No.

PCT/NL2004/000014

is present in addition to the other impurities water and inerts. From this should already be concluded that the argument is not valid. In addition, it appears that of the gas streams resulting from comparable ammonia separation treatment equipment ((3) in D1 and (204) in the application under consideration) the composition should be comparable.

Moreover, it can be derived from the teaching of D1 that the condensation step (in condenser (5)) has the same effect (separation of carbon dioxide by condensation in gas streams with comparable composition) as the condensation step (in the submerged condenser (246) and gas/liquid separator (250)) of the present application.

The argument could contribute to the novelty of the process of claim 1,2 in case a difference would exist in the type of condenser equipment used thereby inevitable resulting in different compositions of gas streams resulting by such process steps. The person skilled in the art should know that both condensers (e.g.) use different temperatures and by this fact are not comparable. At the moment such a difference is neither evident from the application documents nor brought up by the applicants in their letter of reply.

(3) It appears that it is without technical effect (Article 33(3) PCT) to apply a condensation step to an ammonia stream 'consisting substantially' of gaseous ammonia. The problem of solids-formation is solved only in case carbon dioxide is also present in that stream.

(4) Unamended claims do not meet the requirements for patentability whereas the present description (not adapted to these amended claims) is not allowable.